

ENTS - TELECOMMUNICATIONS

ENTS609 Telecommunications Project (3 Credits)

Consists of a student project in the area of telecommunication system applications, management, or policy. Specific projects will be supervised individually by faculty members associated with the M.S Program in Telecommunications.

ENTS622 Introduction to Digital Communication Systems (3 Credits)

Principles of analog and digital communication systems design. Analysis of the performance and relative merits of different modulation and demodulation, signal processing, filtering and error control schemes in communication systems. Also provides an understanding of the design of modern digital communication systems.

Restriction: Must be in Telecommunications (Master's) program; or permission of ENGR-Electrical & Computer Engineering department.

Credit Only Granted for: ENTS622 or ENTS689B.

Formerly: ENTS689B.

ENTS625 Management and Organizational Behavior in the Telecommunications Industry (3 Credits)

Roles of the general manager in: determining target markets and designing strategies for them; formulating and implementing corporate and business level strategies; and staffing, developing, and managing human resources and coordinating them with the organization's financial and physical resources. Also emphasizes the building of interpersonal skills with respect to the selection of members for work teams and team formation, leadership of teams toward the achievement of strategic goals and total quality, the development and motivation of team members, and the evaluation of team and individual performance.

ENTS629 Special Topics in Cybersecurity (3 Credits)

Selected topics of current importance in cybersecurity.

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits if content differs.

ENTS630 The Economics of International Telecommunications (3 Credits)

Basic microeconomic principles used by telecommunications firms, including supply and demand, elasticity, costs, productivity, pricing, market structure and competitive implications of alternative market structures. Market failures and government intervention. Public policy processes affecting business operations.

Restriction: Must be in Telecommunications (Master's) program.

ENTS632 Telecommunications Marketing Management (3 Credits)

Topics covered include strategic marketing, sales and customer service challenges confronting organizations in the computer, communications and media industries. The course also addresses volatile technology, regulatory and competitive environments as a backdrop to strategic planning and management in the marketing domain.

Restriction: Must be in Telecommunications (Master's) program.

ENTS635 Decision Support Methods for Telecommunication Managers (3 Credits)

The aim of this course is to introduce management science techniques for informed decision making. Topics covered can include data analysis and regression, optimization models and applications (workforce scheduling, manufacturing, network design, facility location), sensitivity analysis, decision trees, risk analysis and business simulation models. Emphasis will be on telecommunications managerial problems, model development and the use of software packages for decision support.

Restriction: Must be in Telecommunications (Master's) program.

ENTS639 Special Topics in Business (3 Credits)

Selected topics of current importance in business.

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits if content differs.

ENTS640 Networks and Protocols I (3 Credits)

An overview of design issues and the important industry standards for digital communications networks. This includes protocols, data communications technologies, error correction and detection, congestion control, traffic routing, Local Area Network (LAN) protocols, TCP/IP, and some security issues.

Restriction: Must be in Telecommunications (Master's) program.

ENTS641 Networks and Protocols II (3 Credits)

Techniques for the specification, design, analysis, verification and testing of communication protocols are discussed. The course includes detailed discussion on routing protocols in the Internet. This includes Routing Information Protocol (RIP), Enhanced Interior Gateway Routing Protocol (EIGRP). Open Shortest Path First (OSPF), and Border Gateway Protocol (BGP4).

Prerequisite: ENTS640.

Restriction: Must be in Telecommunications (Master's) program.

ENTS649 Special Topics in Networking (3 Credits)

Selected topics of current importance in networking.

Restriction: Must be in Telecommunications (Master's) program.

ENTS653 AWS/PCS System Implementation (3 Credits)

Engineering issues associated with designing and deploying a AWS/PCS cellular wireless communications system in the current world environment will be examined. The course will focus on implementation issues such as the impact of real world concerns on the deployment strategy and the use of good engineering practice to overcome obstacles. Students will create and modify mock deployments using professional tools for cell planning and interference analysis. Students will also be exposed to drive testing tools and concepts for migration to future technologies.

Restriction: Must be in Telecommunications (Master's) program.

ENTS654 Optimization and Analysis of GSM Networks (3 Credits)

The techniques needed to successfully optimize a functioning GSM network will be examined. Students will conduct extensive drive tests of a working network in the Washington DC area using state-of-the-art drive test equipment and will analyze the recorded data with post-processing analysis tools. Also, they will learn to recognize problems based on network behaviors and what courses of action are available to correct them. Lab work and data collection will constitute a majority of the class work.

Prerequisite: ENTS656 or ENTS653; and permission of ENGR-Electrical & Computer Engineering department.

Restriction: Must be in Telecommunications (Master's) program.

Credit Only Granted for: ENTS654 or ENTS689B.

ENTS656 Introduction to Cellular Communication Networks (3 Credits)

Concepts and techniques involved in wireless digital communications with emphasis on cellular and PCS systems. Properties of Mobile radio channels; intersymbol interference, multipath, and fading effects; interleaving and diversity; multiple access schemes (TDMA, FDMA, CDMA); interuser interference, traffic issues, and cell capacity; power control strategies; frequency reuse and channel assignment; handoff, paging, and location update; cell layout; introduction to cellular and PCS standards.

ENTS657 Satellite Communication Systems (3 Credits)

An examination of satellite telecommunication systems with an emphasis on the mobile satellite systems (MSS). Topics will include a historical perspective, orbital mechanics and constellations, choice of orbital parameters, propagations considerations, link budgets, interference issues and other obstacles, and existing and proposed mobile satellite systems. It will also look at some of the business aspects such as the cost of deploying and maintaining these systems.

Credit Only Granted for: ENTS657 or ENTS689S.

Formerly: ENTS689S.

ENTS659 Special Topics in Communications (3 Credits)

Selected topics of current importance in communications.

Restriction: Must be in Telecommunications (Master's) program.

ENTS669 Special Topics in Computing (3 Credits)

Selected topics of current importance in computing.

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits.

ENTS670 Introduction to Business and Entrepreneurship (3 Credits)

This is a fundamental course that provides a broad introduction to various business issues faced by any small business or startup. Course instructors present the key issues involved in outlining a clear value proposition and profitable business model, managing and monitoring finances, developing a winning team, addressing legal considerations, executing on operations including marketing sales, manufacturing and service.

Restriction: Must be in Telecommunications (Master's) program.

Credit Only Granted for: ENTS670 or ENTS689J.

ENTS673 Project Management for Telecommunications (3 Credits)

Introduces modern project management. Begins with an overview and expands into Adaptive and Extreme project management. The focus then shifts to the individual skills required to be an effective project manager, such as time management, leadership and motivation. Once skills of the individual have been addressed, social networks and how they impact project management are examined.

Formerly: ENTS689P.

ENTS689 Special Topics in Telecommunications (3 Credits)

Selected topics of current importance in telecommunications.

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits if content differs.

ENTS699 Independent Study in Telecommunications (1-3 Credits)

Individual instruction course. See ENTS program office for section number.

Repeatable to: 3 credits if content differs.

ENTS749 Advanced Topics in Networking (3 Credits)

Selected advanced topics in networking.

Prerequisite: ENTS640 or ENTS641; or permission of instructor.

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits if content differs.

ENTS759 Advanced Topics in Communications (3 Credits)

Selected advanced topics in communications.

Prerequisite: ENTS622; or students who have taken courses with comparable content may contact the department. And (ENTS656 or ENTS653).

Restriction: Must be in Telecommunications (Master's) program.

Repeatable to: 18 credits if content differs.